

Selected Publications and Presentations

Reports

Aqueous Corrosion of Aluminum-Based Nuclear Fuel

M. D. Kaminski

ANL-CMT-03/1, Argonne National Laboratory Chemical Engineering Division Report, Argonne, IL, April 2003

Review of Arsenic Removal Technologies for Contaminated Groundwaters

K. Vu, M. D. Kaminski, and L. Nunez

ANL-CMT-03/1, Argonne National Laboratory Chemical Engineering Division Report, Argonne, IL, April 2003

Status of Ceramic Waste Form Degradation and Radionuclide Release Modeling

T. H. Fanning, W. L. Ebert, S. M. Frank, M. C. Hash, E. E. Morris, L. R. Morss, T. P. O'Holleran, and R. A. Wigeland

ANL-03/08, February 2003

Batch Tests with Unirradiated Uranium Metal Fuel Program Report

M. D. Kaminski

ANL-01/33, Argonne National Laboratory Report, Argonne, IL, 2002

Batch Tests with Irradiated Uranium Metal Fuel

M. D. Kaminski and M. M. Goldberg

ANL-CMT-03/3, Argonne National Laboratory Chemical Engineering Division Report, Argonne, IL, July 2003

Polychlorodibenzo-p-dioxin and Polychlorodibenzo-Furan Removal and Destruction

S. Patel, M. D. Kaminski, and L. Nuñez

ANL-CMT-03/4, Argonne National Laboratory Chemical Engineering Division Report, Argonne, IL, August 2003

Recovery of Entrained CSSX Solvent from Caustic Aqueous Raffinate Using Coalescers

C. Pereira, H. A. Arafat, J. R. Falkenberg, M. C. Regalbuto, and G. F. Vandegrift

ANL-02/34, Argonne National Laboratory Report, Argonne, IL, November 2002

Abstracts and Proceedings Papers

Demonstration of the UREX+ Process

S. B. Aase, M. C. Regalbuto, and G. F. Vandegrift

Abstract, presented at 27th Actinide Separations Conference, Argonne, IL, June 9-12, 2003

RERTR Progress in ⁹⁹Mo Production from LEU

A. J. Bakel, G. F. Vandegrift, S. B. Aase, A. V. Gelis, K. J. Quigley, and J. L. Snelgrove

Abstract, presented at 27th Actinide Separations Conference, Argonne, IL, June 9-12, 2003

Coextraction of Np and Pu from Nitric Acid Waste Solutions with TBP

A. V. Gelis, D. L. Bowers, and G. F. Vandegrift

Abstract, presented at 27th Actinide Separations Conference, Argonne, IL, June 9-12, 2003

PYROX—Pyrochemical Treatment of Spent Light Water Reactor Oxide Fuel

M. A. Williamson

Abstract, presented at 27th Actinide Separations Conference, Argonne National Laboratory, Argonne, IL, June 9-12, 2003

Efficiency Improvements and Scale-Up for Uranium Electrowinning

J. L. Willit, R. J. Blaskovitz, and J. Figueroa

Abstract, presented at 27th Actinides Separations Conference, Argonne National Laboratory, Argonne, IL, June 9-12, 2003

Actinides in Alkaline Media: Dissolution, Mineral Associations, and Speciation in Hanford Waste Tank Sludge Simulants

K. L. Nash, A. V. Gelis, M. P. Jensen, A. H. Bond, J. C. Sullivan, L. Rao, and A. Garnov
Proc. of the Actinide 2001 Int. Conf., J. of Nuclear Sci. and Tech., Supplement 3,
pp. 521–515 (2002)

Papers Presented at Scientific Meetings

PYROX Process Development

Mark A. Williamson

Presented at the Advanced Fuel Cycle Initiative Semi-Annual Review, Albuquerque, NM, January 21-24, 2003.

Advanced Pyroprocessing Technology

Mark A. Williamson

Presented at the Advanced Fuel Cycle Initiative Semi-Annual Review, Santa Fe, NM, August 26-28, 2003.

Using In-Situ Formed Magnetite for the Removal of Sr and Actinides from Tank Waste at the Savannah River Site

H. A. Arafat, S. B. Aase, A. V. Gelis, M. C. Regalbuto, J. Sedlet, and G. F. Vandegrift

Presented at the AIChE Spring 2003 National Meeting, New Orleans, LA, March 30–April 3, 2003

Removal of Sr and Actinides from Alkaline Tank Waste Using In Situ Formed Mixed Iron Oxides (IS-MIO)

H. A. Arafat, S. B. Aase, A. V. Gelis, M. C. Regalbuto, J. Sedlet, and G. F. Vandegrift

Presented at the AIChE Spring 2003 National Meeting, New Orleans, LA, March 30–April 3, 2003

Glass Degradation Model for Contact by Humid Air, Dripping Water, and Immersion

- W. L. Ebert, R. A. Olson, J. A. Fortner, and N. L. Dietz
Presented at the Am. Nucl. Soc. Int. High-Level Radioactive Waste Management Conf.,
Las Vegas, NV, March 30–April 2, 2003
- Re-evaluating Neptunium in Uranyl Phases Derived from Corroded Spent Fuel
J. A. Fortner, R. J. Finch, A. J. Kropf, and J. C. Cunnane
Presented at the 10th Int. High-Level Radioactive Waste Management Conf. (IHLRWM),
Las Vegas, NV, March 30–April 3, 2003
- Re-evaluating Neptunium in Uranyl Phases Derived from Corroded Spent Fuel
J. A. Fortner, R. J. Finch, A. J. Kropf, and J. C. Cunnane
Presented at the 225th Am. Chem. Soc. National Meeting & Exposition,
New Orleans, LA, March 23–27, 2003
- Aqueous Colloids from Corrosion of Metallic Uranium Fuel: A SAXS and TEM Study
J. A. Fortner, C. J. Mertz, M. M. Goldberg, and S. Seifert
Presented at the 225th Am. Chem. Soc. National Meeting & Exposition,
New Orleans, LA, March 23–27, 2003
- Dissolution Behavior of Irradiated Thoria-Urania Fuel in Oxidizing Groundwater at 90°C
J. L. Jerden and J. C. Cunnane
Presented at the 2003 Int. High-Level Radioactive Waste Management Conf.,
Las Vegas, NV, March 30–April 2, 2003
- Study of the Hydroxocarbonate Speciation of Plutonium(VI) in Alkaline Media
I. Laszak, A. V. Gelis, M. P. Jensen, and K. L. Nash
Presented at the 225th ACS National Meeting, New Orleans, LA, March 23–27, 2003
- TEM Analysis of an Actinide-Bearing Sorbent: Monosodium Titanate
N. L. Dietz, M. C. Duff, and D. T. Hobbs
Presented at the VII InterAmerican Congress on Electron Microscopy, Microscopy and
Microanalysis 2003 Conf., San Antonio Convention Center, San Antonio, TX, August 3–
7, 2003
- ANL UREX+ Lab-Scale Demonstration Results
G. F. Vandegrift, M. C. Regalbuto, S. Aase, H. Arafat, A. Bakel, D. Bowers, J. P. Byrnes,
M. A. Clark, J. W. Emery, J. R. Falkenberg, A. V. Gelis, C. Pereira, L. Hafenrichter, Y. Tsai,
K. J. Quigley, and M. H. Vander Pol
Presented at Advanced Fuel Cycle Initiative Semi-Annual Meeting, Santa Fe, NM,
August 26–28, 2003
- AMUSE Code Update
M. C. Regalbuto, J. M. Copple, and G. F. Vandegrift
Presented at Advanced Fuel Cycle Initiative Semi-Annual Meeting, Santa Fe, NM,
August 26–28, 2003
- Development of Engineering Product Storage Concepts
M. D. Kaminski, G. F. Vandegrift, J. Laidler, E. Bakker, and W. Culbreth
Presented at Advanced Fuel Cycle Initiative Semi-Annual Meeting, Santa Fe, NM,

August 26-28, 2003

Development of the AMUSE Code

M. C. Regalbuto, G. F. Vandegrift, A. J. Bakel, J. M. Copple, and C. Pereira
Presented at the Advanced Nuclear Fuel Cycle Initiative Quarterly Review,
Albuquerque, NM, January 21–24, 2003

The Behavior of Light Water Reactor Fuel After the Cladding Is Breached Under Unsaturated Test Conditions

J. C. Cunnane, J. Fortner, and R. J. Finch
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Accounting for EBR-II Metallic Waste Form Degradation in TSPA

W. L. Ebert, M. A. Lewis, T. L. Barber, and S. G. Johnson
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston MA, December 2–6, 2002

Observations on Aqueous Colloid Formation during High Level Waste Glass Corrosion

J. A. Fortner, C. J. Mertz, and J. C. Cunnane
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Natural Groundwater Colloids from the USGS J-13 Well in Nye County, NV: A Study Using SAXS and TEM

J. A. Fortner, C. J. Mertz, and P. R. Jemian
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Radionuclide Release Rates From Spent Fuel Rod Segments

M. M. Goldberg and Y. Tsai
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Effects of Iron and pH on Glass Dissolution Rate

S.-Y. Jeong and W. L. Ebert
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Dissolution Behavior and Fission Product Release from Irradiated Thoria-Urania Fuel in Groundwater at 90°C

J. L. Jerden and J. C. Cunnane
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Dissolution of a Multiphase Waste Form

M. A. Lewis, N. L. Dietz, and T. H. Fanning
Presented at the Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Ceramic Waste Form Dissolution Behavior in Silicate Groundwater

M. A. Lewis, N. L. Dietz, and T. H. Fanning

Presented at the Fall Meeting of the Mater. Res. Soc., Boston, MA, December 2–6, 2002

Understanding the Behavior and Stability of Some Uranium Mineral Colloids

C. J. Mertz, J. A. Fortner, and Y. Tsai

Presented at Mater. Res. Soc. Fall 2002 National Meeting, Boston, MA, December 2–6, 2002

Argonne National Laboratory (ANL) Progress in Minimizing Effects of LEU Conversion on Calcination of Fission Product ^{99}Mo Acid Waste Solution

A. J. Bakel, K. J. Quigley, and G. F. Vandegrift

Presented at the 24th Int. RERTR Meeting, San Carlos de Bariloche, Argentina, November 3–8, 2002

Argonne National Laboratory Progress in Developing a Target and Process for Converting CNEA Molybdenum-99 Production to Low-Enriched Uranium

G. F. Vandegrift, A. V. Gelis, S. B. Aase, A. J. Bakel, E. Freiberg, Y. Koma, and C. Conner

Presented at the 24th Int. RERTR Meeting, San Carlos de Bariloche, Argentina, November 3–8, 2002

Characterization of Actinide Removal Mechanisms for High-Level Waste Treatment: Application of X-ray Absorption Fine Structure (XAFS) Spectroscopic Techniques

M. C. Duff, D. B. Hunter, D. T. Hobbs, M. J. Barnes, S. D. Fink, Z. Dai, J. P. Bradley, N. L. Dietz, and J. A. Fortner

Presented at the 29th Annual Meetings of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), Providence, RI, October 13–17, 2002